

CLAIMS:

1. A color developing composition having a pH greater than 7 and comprising:
- 5 a) at least 0.0005 mol/l of a color developing agent,
b) at least 0.0005 mol/l of an organic antioxidant for said color developing agent, and
c) at least 0.0005 mol/l of a stabilizing compound represented by the following Structure (I):



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(I)

wherein R₁ and R₂ are independently hydrogen or a monovalent aliphatic, heterocyclic, or aromatic group, or R₁ and R₂ are taken together with the nitrogen to which they are attached to form a substituted or unsubstituted 5- to 6-membered heterocyclic ring, m is 0 or 1 such that when m is 0, L is an alkyl or aryl group and when m is 1, L is an alkylene or arylene linking group, M⁺ is a suitable cation to provide a salt, and n is 1, 2, or 3.

20 2. The composition of claim 1 having a pH of from about 8 to about 14, and wherein said color developing agent is present in an amount of from about 0.0005 to about 5 mol/l, and said antioxidant is a hydroxylamine derivative that is present in an amount of from about 0.0005 to about 1 mol/l.

25 3. The composition of claim 2 wherein said antioxidant has one or more sulfo, carboxy, or hydroxy solubilizing groups.

4. The composition of claim 1 further comprising one or more polycarboxylic acids or polyphosphonic acids as calcium ion sequestering agents.

30 5. The composition of claim 1 comprising from about 0.005 to about 3 mol/l of said stabilizing compound.

6. The composition of claim 1 wherein the molar ratio of said stabilizing compound to said antioxidant is from about 1:20 to about 20:1.

7. The composition of claim 1 wherein n is 1 or 2, R₁ and R₂ are independently hydrogen, an alkyl group having 1 to 5 carbon atoms, or a phenyl group, m is 1, L is phenylene or an alkylene having 2 to 12 carbon atoms in the chain, and M⁺ is hydrogen, ammonium ion, or an alkali metal cation.

8. The composition of claim 7 wherein m is 1, n is 1, R₁ and R₂ are independently hydrogen, methyl, or ethyl, L is phenylene or an alkylene having 2 to 4 carbon atoms in the chain, and M⁺ is hydrogen, ammonium, sodium, or potassium.

9. The composition of claim 1 wherein R₁ and R₂ form a 5- or 6-membered heterocyclic ring having one or more -L-SO₃⁻M⁺ groups as substituents on said ring.

10. The composition of claim 1 wherein said stabilizing compound is aminoethanesulfonic acid, 3-(N-(tris(hydroxymethyl)methyl)-amino)propanesulfonic acid, 3-(cyclohexylamino)-1-propanesulfonic acid, 3-(cyclohexylamino)-2-hydroxy-1-propanesulfonic acid, aminophenylsulfonic acid, 2-(N-morpholinoethanesulfonic acid, methanesulfonic acid, piperazine-N,N'-bis(2-ethanesulfonic acid), 1-propanesulfonic acid, 2-hydroxy-3-[[2-hydroxy-1,1-bis(hydroxymethyl)ethyl]amino], 2-[[tris(hydroxymethyl)methyl]-amino]ethanesulfonic acid, 3-(N-morpholino)-2-hydroxypropanesulfonic acid, 3(N-(tris(hydroxymethyl)methyl)amino)propanesulfonic acid, napthalenesulfonic acid, 2-hydroxyethanesulfonic acid, or a salt of any of these acids.

11. A homogeneous, aqueous single-part color developing composition having a pH of from about 8 to about 14 and comprising:
a) from about 0.0005 to about 1 mol/l of a color developing agent in free base form,

- b) from about 0.0005 to about 1 mol/l of a hydroxylamine derivative antioxidant for said color developing agent,
- c) a water-miscible or water-soluble hydroxy-substituted, straight-chain organic solvent that has a molecular weight of from about 50 to 5 about 200,
- d) a buffering agent that is soluble in said organic solvent, and
- e) at least 0.0005 mol/l of a stabilizing compound represented by the following Structure (I):



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(I)

wherein R₁ and R₂ are independently hydrogen or a monovalent aliphatic, heterocyclic, or aromatic group, or R₁ and R₂ are taken together with the nitrogen to which they are attached to form a substituted or unsubstituted 5- to 6-membered heterocyclic ring, m is 0 or 1 such that when m is 0, L is an alkyl or aryl group and 15 when m is 1, L is an alkylene or arylene linking group, M⁺ is a suitable cation to provide a salt, and n is 1, 2, or 3.

12. The composition of claim 11 wherein said stabilizing compound is aminoethanesulfonic acid, 3-(N-(tris(hydroxymethyl)methyl)-20 amino)propanesulfonic acid, 3-(cyclohexylamino)-1-propanesulfonic acid, 3-(cyclohexylamino)-2-hydroxy-1-propanesulfonic acid, aminophenylsulfonic acid, 2-(N-morpholinoethanesulfonic acid, methanesulfonic acid, piperazine-N,N'-bis(2-ethanesulfonic acid), 1-propanesulfonic acid, 2-hydroxy-3-[[2-hydroxy-1,1-bis(hydroxymethyl)ethyl]amino], 2-[[tris(hydroxymethyl)methyl]-25 amino]ethanesulfonic acid, 3-(N-morpholino)-2-hydroxypropanesulfonic acid, 3(N-(tris(hydroxymethyl)methyl)amino)propanesulfonic acid, napthalenesulfonic acid, 2-hydroxyethanesulfonic acid, or a salt of any of these acids.

13. A multi-part color developing composition kit comprising:
30 (I) a first aqueous solution having a pH of from about 9 to about 13,
(II) a second aqueous solution having a pH of from about 3 to about 7
and comprising:

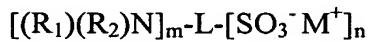
(a) at least 0.0005 mol/l of a color developing agent,
(b) at least 0.0005 mol/l of an organic antioxidant for said color developing agent, and

(c) at least 0.0001 mol/l of sulfite ions,

5 (III) an optional third aqueous solution having a pH of from about 10 to about 13.5,

wherein one or more of said first or second aqueous solutions further comprises:

10 (d) at least 0.0005 mol/l of a stabilizing compound represented by the following Structure (I):



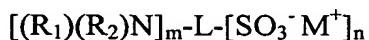
(I)

wherein R₁ and R₂ are independently hydrogen or a monovalent aliphatic, heterocyclic, or aromatic group, or R₁ and R₂ are taken together with the nitrogen 15 to which they are attached to form a substituted or unsubstituted 5- to 6-membered heterocyclic ring, m is 0 or 1 such that when m is 0, L is an alkyl or aryl group and when m is 1, L is an alkylene or arylene linking group, M⁺ is a suitable cation to provide a salt, and n is 1, 2, or 3.

20 14. The kit of claim 13 wherein said stabilizing compound is present in at least said second aqueous solution.

15. A color developing composition having a pH greater than 7 and comprising at least 0.0005 mol/l of a color developing agent, and

25 at least 0.0005 mol/l of a stabilizing compound represented by the following Structure (I):

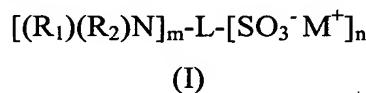


(I)

wherein R₁ and R₂ are independently hydrogen or a monovalent aliphatic, 30 heterocyclic, or aromatic group, or R₁ and R₂ are taken together with the nitrogen to which they are attached to form a substituted or unsubstituted 5- to 6-membered heterocyclic ring, m is 0 or 1 such that when m is 0, L is an alkyl or aryl group and

when m is 1, L is an alkylene or arylene linking group, M⁺ is a suitable cation to provide a salt, m is 0 or 1, and n is 1, 2, or 3.

16. A method for providing a color image in a color photographic silver halide element comprising contacting said element with an aqueous photographic color developing composition having a pH of from about 7 to about 14 and comprising:
- a) at least 0.0005 mol/l of a color developing agent,
 - b) at least 0.0005 mol/l of an organic antioxidant for said color developing agent, and
 - c) at least 0.0005 mol/l of a stabilizing compound represented by the following Structure (I):



- 15 wherein R₁ and R₂ are independently hydrogen or a monovalent aliphatic, heterocyclic, or aromatic group, or R₁ and R₂ are taken together with the nitrogen to which they are attached to form a substituted or unsubstituted 5- to 6-membered heterocyclic ring, m is 0 or 1 such that when m is 0, L is an alkyl or aryl group and when m is 1, L is an alkylene or arylene linking group, M⁺ is a suitable cation to provide a salt, and n is 1, 2, or 3.

17. A method of photographic processing comprising the steps of:

- A) color developing an imagewise exposed color photographic silver halide element with a photographic color developing composition having a pH of from about 7 to about 14 and comprising:
 - a) at least 0.0005 mol/l of a color developing agent,
 - b) at least 0.0005 mol/l of an organic antioxidant for said color developing agent, and
 - c) at least 0.0005 mol/l of a stabilizing compound represented by the following Structure (I):



(I)

wherein R₁ and R₂ are independently hydrogen or a monovalent aliphatic, heterocyclic, or aromatic group, or R₁ and R₂ are taken together with the nitrogen to which they are attached to form a substituted or unsubstituted 5- to 6-membered ring, m is 0 or 1 such that when m is 0, L is an alkyl or aryl group and when m is 1, L is an alkylene or arylene linking group, M⁺ is a suitable cation to provide a salt, and n is 1, 2, or 3, and

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B) desilvering said color developed color photographic silver halide element.

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18. The method of claim 17 wherein said photographic color silver halide element is a photographic color paper or color negative film.

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19. The method of claim 17 carried out in a minilab.

20. The method of claim 17 wherein said color development composition is replenished at a rate of from about 6 to about 2000ml/m² of processed color photographic silver halide element, color development is carried out for from about 12 to about 450 seconds, and said desilvering is carried out

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from about 30 to about 600 seconds.